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T-698 P.003/008 F-726

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B/RW/701397AU1	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/IB01/01197	International Filing Date (day/month/year) 14 May 2001	Priority Date (day/month/year) 12 May 2000
International Patent Classification (IPC) or national classification and IPC Int. Cl. G06F 9/45, 12/14, 3/023		
Applicant XTREAMLOK PTY. LTD. et al		

This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

Those annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input checked="" type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input type="checkbox"/> | Certain defects in the international application |
| VIII | <input checked="" type="checkbox"/> | Certain observations on the international application |

Date of submission of the demand 11 December 2001	Date of completion of the report 22 July 2002
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pat@ipaaustralia.gov.au Facsimile No. (02) 6285 1929	Authorized Officer P. THONG Telephone No. (02) 6283 2128

Form PCT/IPEA/409 (Cover sheet) (July 1998)

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/IB01/01197

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

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International application No.

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. This Authority has found that there are several different groups of inventions:

1. Claims 1-10, 43-53 and 57 are directed to arrangements involving polymorphs. An arrangement having this first "special technical feature" is considered a first invention.
2. Claims 11 and 17-20 are directed to arrangements involving instruction code decryption. An arrangement having this second "special technical feature" is considered a second invention.
3. Claims 12 and 21-23 are directed to arrangements involving random context instruction codes. An arrangement having this third "special technical feature" is considered a third invention.
4. Claims 13 and 24-26 are directed to arrangements involving the overwriting of header data of jump instructions. An arrangement having this fourth "special technical feature" is considered a fourth invention.
5. Claims 14-16 and 27-42 are directed to arrangements for secure data entry. An arrangement having this fifth "special technical feature" is considered a fifth invention.
6. Claims 54-56 are directed to an arrangement involving the replacement of a call instruction with a second call instruction that is written directly to a program stack. An arrangement having this sixth "special technical feature" is considered a sixth invention.

Since the abovementioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept, a priori.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 2,3,13,16,18-20,23-26,35-45,48-57	YES
	Claims 1,4-12,14,15,17,21,22,27-34,46,47	NO
Inventive step (IS)	Claims 2,3,13,16,18-20,23-26,35-45,48-57	YES
	Claims 1,4-12,14,15,17,21,22,27-34,46,47	NO
Industrial applicability (IA)	Claims 1-57	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**NOVELTY (N): Claims 1,4-10,12,21,22,46,47 (first and third inventions)**

D1-WO 99/01815 D2-US 6009543 D3-US 5966536 D4-US 5867647 D5-US 5903761

The disclosures in citation D1 directly anticipate the claimed arrangement. Claim 1 for example involves the modification of compiled codes via substitution of candidate instructions with other functionally equivalent code. Likewise, citation D1 (page 24 lines 17 to 27 and figure 5, page 25 lines 25 to 29, page 26 line 5 to page 27 line 23, page 18 lines 22 to 28, page 20 lines 3 to 9, page 86 line 26 to page 88 line 13, page 98 lines 26 to 30, page 83 line 30 to page 84 line 5) involves code obfuscation of compiled source code to produce several random versions of obfuscated object code (see figure 5 and page 98 lines 24 to 29). The obfuscation technique includes substituting candidate parts of the compiled source code (candidate instructions) with functionally isomorphic code. Such disclosures render the claimed features not novel.

INVENTIVE STEP (IS): Claims 1,4-10,12,21,22,46,47

As above.

NOVELTY (N): Claims 11,17 (second invention)

D6-US 6052780 D7-US 5892899

Citations D6 and D7 individually anticipate the claimed arrangements. Claim 11 is directed to a system with means for decrypting an encrypted instruction code, means for executing the decrypted code and re-encrypting the decrypted code. Citation D6 (column 22 lines 31 to 37) gives explicit disclosures of such a system. The citation's system involves a debugger that decrypts an encrypted program fragment just in time to allow the execution of the fragment and immediately re-encrypts the decrypted fragment after execution. Since the claimed system is considered suitable for securely executing a compiled application, the citation's system, having the same features, must likewise be suitable.

INVENTIVE STEP (IS): Claims 11,17

As above.

NOTE: See Supplemental Box

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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

- 1) The specification does not fully and clearly describe the invention(s). The specification relies on figures 17 to 21 (pages 7, 8, 17) to describe the invention(s) completely, yet none of these figures accompanies the specification.
- 2) Consequently, it is uncertain if any of the claims could be considered as being fully supported by the description.
- 3) The fair basis of claims 1, 10, 48, 53 and 57 at least is uncertain. The claims on the one hand appear to involve the substitution of candidate instructions with randomly ~~generated~~ and functionally isomorphic codes. The description on the other hand involves the substitution of candidate instructions with randomly ~~selected~~ and functionally isomorphic codes (see page 8 line 33 to page 9 line 9). While the selection process itself may be random, the description does not appear to suggest that the isomorphic codes themselves are randomly generated or created.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V. (2) Citations and explanations

NOVELTY (N): Claims relating to the fourth and sixth inventions

D8=WO 99/30229

The inventions are not disclosed in the citation.

INVENTIVE STEP (IS): Claims relating to the fourth and sixth inventions

As above.

NOVELTY (N): Claims 14,15,27-34 (fifth invention)

D9=US 6006328

D10=US 5596718

D11=US 5949882

D12=US 5748888

D13=US 5949348

4=US 5276314

D15=US 5428349

D16=US 4806745

D17=FR 2693809

The individual disclosures of citations D9 to D12 are anticipative of the claimed features. Claim 14 is directed to a sub-system comprising an operating system, means for entering input and means for intercepting and obscuring said input intended for the operating system. Citation D10 likewise is directed to an arrangement comprising a host system 60 (ie an operating system) capable of receiving input from a keyboard 20 (means for entering input) and a trusted path sub-system 30 (ie means for intercepting and obscuring input) that intercepts and encrypts keyboard inputs destined for the host system. Since the claimed sub-system is considered suitable to be used in a system for executing randomly modified code, the citation's arrangement, having the same features, must likewise be suitable.

INVENTIVE STEP (IS): Claims 14,15,27-34

As above.